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GUERSANT ON SURGICAL DISEASES OF INFANTS, ETC. 8 PAGES.

CLINICS.

CLINICAL LECTURES.

Clinical Lectures on Strangulated Hernia. Delivered at St. Bartholomew's Hospital. By Sir JAMES PAGET, Bart., V.P.R.S., Consulting Surgeon to the Hospital. (Continued from page 165.)

LECTURE III.—The design of the operation for hernia is to divide the structures which tightly gird the protruding parts, so that these may be returned, these structures, forming what is called the stricture, are in some cases outside the hernial sac; in some, in its very substance; and, according to these and other differences, the operation may in some cases be completed without opening the sac, and in other cases must include this opening. The advantages of the two methods have been often discussed, and I may begin by speaking of them.

There can be no doubt, I think, that if all the rest of the operation were always the same, the advantage of reducing the hernia without opening the sac should always be sought. Thus to reduce a hernia is the next best thing to reducing one without any operation at all. The structures divided externally to the sac are insignificant, and it might be difficult to name an operation less endangering either life or health than this would be. The peritoneum is not wounded; the intestine and omentum are not touched or exposed to air; the wound may be small; any hemorrhage may be easily stayed, and must be all external. Thus the wound

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is favourable for speedy healing, and erysipelas or any other mischief is not likely to extend to the peritoneum.

These are sufficient reasons for always wishing and generally intending to operate without opening the sac, especially in old and feeble people and in case of large herniæ. But you must not let your wishes carry you too far. They may lead you into great mischief. For, first, there are many cases in which the contents of the sac are not fit to be returned into the abdomen—for instance, when they are sloughing, or deeply ulcerated, or strangulated within the sac. The risk of returning these is so much greater than that of opening the sac, that you should not hesitate to open it whenever you have any, even slight, reason to suspect any of these conditions of the sac's contents. And such conditions there must always be in these sets of cases—1, in those in which the strangulation has existed long, say four or more days, whether with slight or severe symptoms; 2, those, of whatever date, in which the signs of strangulation are very acute; 3, those in which there are very marked signs of advanced or low inflammation in and about the sac; 4, those in which the contents do not go back easily and within two or three minutes after all stricture is fairly relieved. And, in measuring this ease of going back, you must be scrupulous; for I have certainly done harm and seen more done by trying too long to reduce herniæ without opening the sac—fingering and clearing the parts, and pressing them many times; damaging intestine, and exciting suppurative inflammation all about the sac; so that, when at last the operation was completed, much more mischief had been done than if the sac had been at first straightforwardly opened.

I think, then, you may take this as a safe rule in all ordinary cases: intend to complete the operation without opening the sac, but give up your intention if you find any reason to suspect complications, or very morbid states of the parts within the sac, or any such difficulties as would lead to the use of forcible or long-continued efforts at reduction. Of course, the more you practise the operation, the less frequently will these difficulties hinder you; but you may keep to the same rule, and think it wiser to avoid difficulties than at all cost to overcome them. And, finally, when you are in doubt, open the sac; for, though the advantages are, on the whole, clearly in favour of not opening the sac, yet the amount of advantage is not so great as to justify any considerable risk for it. Rough statistics of operations are not to be taken as measures of this advantage. In the worst cases, the sac must be opened; and, of these, a large portion die without any regard to the manner of the operation.

As to the method of operating, there are many, and some good anatomical rules, on which I shall not touch. They are admirably laid down in Lawrence on *Hernia*. I will only give some general rules, such as may be useful in nearly all cases.

In all, you should decide at first if possible, whereabouts the stricture is, so that your first incision may be fairly over it, and give you room to act on it without needless length of cutting. In femoral hernia, you may be sure that the stricture is at, or within half an inch of, the femoral ring; and this is near enough for guidance for the first incision. So, in umbilical hernia, the mouth of the sac is always the seat of the stricture; and the middle of your first incision may be right over it. In inguinal hernia, the stricture is, in the large majority of cases, at or within the internal inguinal ring; and the incision should extend from the internal ring to beyond the external ring, and (according to the characters of the hernia) to a greater or less distance towards or along the scrotum. But, in inguinal hernia, the stricture may be at the external ring, or, being formed by the thickened mouth of the sac, may be pushed up towards the abdominal cavity, or down along the canal, or beyond the external ring to some distance in the scrotum. Moreover, in some rare cases of congenital hernia, there may be two strictures—one at each end of the open canalis vaginalis. For these cases, it is useful to apply a rule devised, I think, by Mr. Luke, for ascertaining the seat of stricture;

namely, to observe at what point along the course of the hernia the impulse on coughing ceases. For, when a hernia is strangulated, the impulse can be felt as far as the stricture; beyond that, it cannot be felt: therefore, where the impulse ceases, there probably is the stricture; and this part must be fairly included within the length of your incision.

In femoral hernia, your first incision may be vertical, in a line drawn straight down from the spine of the pubes—a projection which you can always easily feel. This incision seldom needs to be more than an inch and a half long, and may sometimes be less. In umbilical hernia, a vertical incision of an inch and a half or two inches will suffice, in the middle line, so as to reach either the upper or the lower border of the mouth of the sac. But I am disposed to believe, though I have not tried it, that, in large umbilical herniæ, two incisions, going to opposite borders of the ring, would be better than any one. In inguinal hernia, the incision should take the direction of the neck and upper part of the hernia, and its length must vary according to the size of the parts to be returned.

Through these incisions you must go on and on, through the several layers which your anatomical dissections of healthy parts will sometimes enable you to recognize, till you come to the sac. The thickness of these layers is more various than you may suppose. Especially in small femoral herniæ, you will often find an unexpected quantity of fat about the sac; and in umbilical herniæ, very much more fat about the mouth of the sac than the thinness of the integument over it would at first suggest.

Through whatever thickness, you must continue cutting in the same direction; and when you are fairly on the surface of the sac, keep to the same line. Do not clean the whole front of the surface of the sac; do not separate it from the surrounding textures. No good can come of this, but much harm may. You want nothing more than a linear division of the stricture, whether with or without a linear opening of the sac. All that is done on either side of this line is useless or mischievous.

When you have thus fairly reached the sac, and have exposed its neck and mouth or narrowest part, you must proceed differently, according as you propose to complete the operation without or with an opening of the sac. In the latter case, you open the sac first near its mouth, and then along the length and full extent of your external incision; and then divide the stricture from within. You may do this on your finger-nail or a director, and with cares about the intestine and other structures, which are insisted on in all handbooks. In the former case, when you intend not to open the sac, you must find where the stricture is, and divide it outside the sac.

Among femoral herniæ, there are differences as to the seat of stricture which I cannot explain to you, but which my cases made very clear to me. In some instances, as you trace up the neck of the sac, you find it tightly banded across by the layer of fibrous tissue called Hey's ligament—a layer traceable as a falciform edge of the fascia lata, where that fascia is connected with the crural arch, and is thence continued to Gimbernat's ligament, bounding the upper part of the saphenous opening.

Sometimes a fair division of this layer of fibres up to the edge of the crural arch is sufficient to render the hernia reducible; and here, with the reduction, should end the operation. But, with more cases, this is not sufficient; and you may feel the stricture formed by bands of fibres which encircle the neck of the sac, and which must be divided, band by band and layer by layer, till none can be felt. These fibres are, I believe, bands of tough connective tissue, belonging to the cribriform fascia, through which the hernia has protruded. Very rarely, however, even the division of these, and of Hey's ligament too, is not sufficient; for the stricture is formed by thickening of the mouth of the sac itself. This condition, which is the common cause of stricture in inguinal hernia, is very rare in femoral; but it certainly does occur; and, in any case well suited for the operation without opening the sac, you may try to thin the mouth of the sac without opening it, and thus to

make it extensible enough for the return of its contents. You may try this; but, let me add, the chances of success are small. You are much more likely to cut into the sac at some thin place; and, when you have done this, you may as well enlarge the opening and divide the stricture from within.

It is this uncertainty as to the exact cause of stricture in strangulated femoral hernia, which makes it advisable to put on a strong resolve not to use too much time or force in endeavouring to operate without opening the sac. You will be apt to think, when you have divided one thing, that now you will be successful; and you try to press back the bowel. But you fail; and then you divide something else, and try again; and now again you fail. And thus you may go on, till you have done more harm than you would have done by a straightforward opening of the sac and immediate easy division of its stricture and return of its contents. Keep this in mind, that an easy reduction from an open sac is better than a difficult reduction from a closed one.

In umbilical hernia, the case is simpler. The stricture is always in the tough fibrous tissue of the sheath of the rectus. When you have reached this, commonly going much deeper through fat than you would expect, and not only deeper, but further under the sac, you may be able to divide the stricture without opening the sac; but this is difficult, for the sac is very thin, and there may be little tissue between it and the fibrous ring. Still it is well to try, but not too long. You are more likely to open the sac at or close by the stricture; and, if you do this at all, you may as well save time and force by opening it more widely.

In inguinal hernia, the stricture is in many cases, and was in the majority of those on which I operated, formed by the mouth of the sac, thickened and hardened by what appears to have been an inflammatory process, producing a scar-like and contracting tissue. This tissue forms a band about a fourth or a third of an inch in width, and about a line in thickness, and sometimes has a thin sharp inner edge. By the way, let me say that the formation of this band is not the result of wearing trusses. I have seen it very marked in patients who never wore a truss; and I have seen the sac thin and soft in every part in those by whom trusses have been long worn. But, however it may be formed, this annular thickening and contraction of the mouth of an inguinal hernial sac is a common cause of stricture. On account of it, you should proceed at once to expose the mouth of the sac; unless, indeed, you should have found the tissues outside it so tight that you may fairly believe the division of them will be sufficient for permitting the reduction of the hernia. When you have exposed the outside of the thickened mouth of the sac, you may still achieve the reduction without opening, by gradually thinning the mouth—dissecting off band after band from any portion of it. Sometimes the mouth will yield sufficiently at a part thus thinned to stretch and allow the reduction; but more often, I think, you will fail, and will have to open the sac and divide the stricture from within.

Here, as with femoral hernia, be scrupulous not to spend more than fair force and time for the sake of the reduction without opening the sac. It is a good thing to succeed; a bad thing to fail. You must measure how much risk of harm it is right to incur for the hope of doing good.

If the reduction be accomplished without opening the sac, you will have attained the best immediate object of the operation; but remember that fallacies of reduction are possible here as well as in the cases in which no operation has been done; they are, however, less mischievous, for, if the stricture be completely divided, there will be no strangulation of whatever remains in the sac. Especially you must have no fear if, as commonly happens, after returning intestine, some omentum remain in the sac. This will do no harm; but, if more than omentum have remained in the sac, and the signs of strangulation be not relieved or lessened, you must operate again and open the sac, regarding these cases in the same light as those of partial or doubtful reduction, of which I spoke in the last lecture. But, suppose the sac

opened, as it should be in nearly all bad cases, and in many which, though they are not bad, yet may be called difficult, here may occur the most difficult question of all. What is to be done with the contents of the sac? Of course, in most cases you are to return them; but in many you are not, and which are which?

Look first to the character of the fluid which, in most cases, you will let out of the sac. In most cases, not in all; for, in some small femoral herniæ, especially in very thin dry people, and in many umbilical herniæ, and in any that contain a large quantity of omentum, there may be no fluid, or too little to be distinctly seen, but if there be enough to judge from, you may deem it a good sign if the fluid is clear, and yellowish like serum, or rather like liquor sanguinis—for it will coagulate spontaneously. This indicates only such an exudation of fluid as may come from a simple congested piece of intestine or from a piece not badly inflamed; and the cases would be very rare, if there can be any, in which intestine found behind fluid such as this might not be returned. The same may be said when with fluid such as this there are flakes or bands of lymph or fibrinous exudation; for these tell of only such inflammation as may safely be recovered from when the intestine is returned. I am disposed to say the same of the cases in which the fluid is clear, but more or less deeply blood-stained; for this exudation of blood-cells or blood-colour is not characteristic of any serious morbid change in either the sac or its contents. But when the fluid of the sac is turbid, brownish, muddy, it tells of more advanced changes in the intestine or in the omentum; and the further it goes in this direction the more carefully must you consider whether these are in a fit state to be returned. You will probably have to decide that they are not fit, when the fluid has a distinct fæcal or putrid odour; and of course they are not fit when the fluid has fæcal matter mixed with it.

I do not venture to say that the characters of the fluid contents of the sacs of strangulated herniæ are to be absolutely relied on as guides for practice; but they are good evidence to be taken into the general account, for they fairly represent the state of mere congestion or inflammation, or more or less advanced decay or decomposition, or giving way of the walls of the strangulated intestine and omentum.

Not rarely, when you have divided the stricture and returned the contents of the sac, fluid runs from the peritoneal cavity. I do not know any rule of practice but that you must let it run as long as it will, and, if it be of very unsound appearance, not close the wound till the fluid has ceased to flow, if even then.

As to the omentum which the sac may contain, and what to do with it: if there be a small quantity—say two or three square inches—and this be not adherent, and not more changed than by congestion or slight inflammation, there can be no question that you are to return it after the intestine; and if there be a piece of even very large size, and not more changed in texture, you had better return it if you can without much force or expense of time. But it sometimes happens, when the abdomen is tense with over-filled intestine, that you cannot return a large piece of omentum without much difficulty. What then? shall you cut it off or leave it in the sac? I advise you to leave it. I believe that the cutting off, with the necessary ligatures or other fastenings of vessels, adds to the dangers of life; while the leaving of omentum is only sometimes followed by greater difficulty in the fitting of a truss—a difficulty which is not great enough to justify any risk of life.

Still more may this rule of leaving omentum in the sac be observed when a large piece of it is hardened and thickened as by old disease. When a small piece is thus changed you may, I believe, return it.

When omentum is adherent to the sac, but in other respects fit to be returned, you should break the adhesions and return it, after stopping all bleeding. If it be not fit to be returned, leave the adhesions, and in any case do not break adhesions so near the mouth of the sac that their vessels are likely to bleed into the abdominal cavity.

When omentum is sloughing, or nearly sloughing, leave it, that it may cast its sloughs outward.

But the chief questions in these operations are concerned with the state of the strangulated intestine and the manner of dealing with it. You are to judge chiefly from the colour and the tenacity. Use your eyes and your fingers; sometimes your nose; very seldom your ears, for what you may be told about time of strangulation, sensations, and the rest is as likely to mislead you as to guide aright.

As to colour, any tint from the natural gray through various shades of rosy or ruddy pink, or redness, up to the deepest crimson, even verging to blackness, may be consistent with fitness for returning of the intestine, if the texture be good. All these tints may be due to congestion and stagnation of blood, or to extravasation of blood into the intestinal walls; and all these may have been without such inflammation as would spoil the texture of the intestine, and may not have endured long enough to kill it. I am disposed to say that you may return intestine of any colour short of black, if its texture be good; if it feel tense, elastic, well filled out, and resilient, not collapsed or sticky; and the more the surface of the intestine shines and glistens, the more sure you may be of this rule.

When a piece of intestine is thoroughly black, I believe you had better not return it, unless you can be sure that the blackness is wholly from extravasated blood. It may not yet be dead, but it is not likely to recover; and, even if it should not die after being returned, there will be the great risk of its remaining unfit to propel its contents, and helping to bring on death by what appears very frequent—distension and paralysis of the canal above it. But, indeed, utter blackness of strangulated intestine commonly tells of gangrene already; and of this you may be sure if the black textures are lustreless, soft, flaccid, or viscid, sticking to the fingers or looking villous. Intestine in this state should never be returned.

Colours about which there can be as little doubt, for signs of gangrene, are white, gray, and green, all dull, lustreless in blotches or complete over the whole protruded intestine. I cannot tell why there should be so many colours in different cases, or sometimes even in the same case; but all are alike certain signs of gangrene, and they are always combined with loss of due tone and texture of the intestinal wall. Intestine with these marks, even though they be small, must not be returned.

Then, as to the texture of the protruded intestine: it should be, for safety of return, thin-walled, firm, tense, and elastic, preserving its cylindrical form, smooth, slippery, and glossy. The further the intestine deviates from these characters, the more it loses its gloss and looks villous, the more it feels sticky, and is collapsed and out of the cylinder form, the softer and more yielding, the more pulpy, or like wet leather or soaked paper, the less it is fit for return. And when these characters are combined with so many colours as I have described, the intestine must be taken to have perished, and had better be laid open, that its contents may escape externally and do no harm.

But, short of gangrene, there may be ulceration of the walls of the intestine. The usual place for this is where the intestine is girt by the mouth of the sac, and it is most frequent in femoral herniæ long strangulated. In these it is especially the sharp hard edge of Gimbernat's ligament, which seems to cut into the intestine, thinning its wall and at last piercing it: and the chance of this having happened is enough to justify the rule that, where the strangulation has been sharp and long, the intestine should be gently drawn down after the stricture is divided, in order to see that there is no great injury of its walls where the chief pressure of the stricture has fallen on them.

Here too, because they are similarly dangerous to life, I might speak of laceration of the intestine in too violent attempts at reduction, or wound of it in operation; but I have no personal experience of such cases, and can add nothing to what you may read in the best treatises on hernia—such as that of Sir William Lawrence, or in the chapters devoted to hernia by Mr.

Erichsen in his *Science and Art of Surgery*, or by Mr. Birkett in Holmes's *System of Surgery*. These will supply you not only with their authors' experience, but with what they have gathered and set in order from the writings of others. Limiting myself to what I have studied in my own cases, I must omit many things besides ruptured and wounded intestine; such as the various complications of strangulated hernia with hydrocele and misplaced testicle, with varicocele, and with accidents of the operation, such as hemorrhage from the epigastric or the obturator artery. Some of these things I have never seen; others I have seen only once or twice, and have learned concerning them nothing but what you may learn by reading the works to which I have referred you.

But, as to the treatment of sloughing and ulcerated intestine of which I was just speaking, I will only say that it has always seemed to me more prudent to incur a great risk of having a permanent external fæcal discharge by leaving the intestine at the wound, than to add to the risk of life by returning any thing which it may seem possible to repair by suture or any such means. Of course, these means are not to be thought of if the sloughing or ulceration be of more than very small extent; but even in the smallest, unless in some very rare cases, I would not add to the inevitable risks of life by returning the damaged intestine. In cases of hernia, the saving of life is so much more important than anything else, that we ought not to incur a risk of life for anything less than the highest probability of saving a patient from some life-long distress.—*Brit. Med. Journ.*, May 18 and June 1, 1872.

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Extract from a Clinical Lecture delivered at the London Hospital on Affections of Hearing in Cases of Disease of the Nervous System. By J. HUGHLINGS-JACKSON, M.D. —It is now evident enough that there are many nervous diseases which we cannot study methodically unless we examine the deep parts of the eye. Amaurosis, when its nature is revealed by the ophthalmoscope, is one of the most important of all nervous symptoms. It is to be regretted that in spite of the careful works of Wilde, Toynbee, Hinton, Politzer, Von Tröltsch, Moos, and others, we know so little of the symptomatic value of deafness in cases of cerebral disease. There are two reasons for this—(1) There are difficulties in defining the nature and exact seat of the changes on which deafness depends. When a patient becomes blind, we can determine at any rate whether his blindness depends on changes in the optic nerve and retina, or on changes in the apparatus accessory to these percipient parts. But in cases of deafness it is very difficult to tell whether the pathological change is in the auditory nervous[1] system or in the accessory apparatus of hearing. Tröltsch (I quote from St. John Roosa's translation) says (there are no italics in the original)—"The diagnosis of nervous deafness will be the oftener made the *less* the surgeon is able to distinguish the different affections, the *less* he understands how to examine the affected portions, and the *less* knowledge he has of the pathological changes of the external and internal ear." And again, "Let us confess, gentlemen, that we are apt to call those affections 'nervous' which we can neither diagnosticate nor improve by treatment." This is a very unfortunate state of things, but it is due to difficulties inherent in the subject, and not to want of work or skill on the part of those who have especially studied diseases of the ear. From our inability to decide in a case of disease of the nervous system whether the patient is deaf from disease of some part of the auditory nervous system or from disease of the accessory apparatus of hearing, the statement that he is deaf is one of little point in the list of symptoms of his case. (2) In those cases where the deafness is a subordinate symptom (for example, in a case in which there is deafness with palsies of cranial motor nerves), there is not enough precise work done either in establishing the nature of the deafness

[1] I use the expression "auditory nervous system" to include the auditory nucleus, the auditory nerve, and its peripheral expansions in this labyrinth. The expression "optic nervous system" includes the corpora quadrigemina, optic tracts, optic nerves, and retinæ.

during life or in noting the appearance in the ear and its nerves found post-mortem. Thus many valuable facts are lost. I now write because I wish to urge that in physicians' practice a good field will be found for the precise study of the various causes of deafness.

Physicians see cases in which deafness is associated with other and more easily understood nervous symptoms. Again, in physicians' practice, from the greater gravity of the cases, post-mortem verification or disproof of the conclusions which our examinations of the ear have led us to is to be more often obtained.[1] There is one thing which can be safely stated—namely, that deafness, presumably of nervous origin, is rarely met with in cases of intracranial disease of any kind; but since it is, as we have seen, very difficult to tell whether a patient's deafness is of nervous origin or not, this statement is not definite. We can, however, make the wider statement that deafness of any kind (excluding cases *manifestly* due to disease of the apparatus of hearing, cases with discharge from the meatus, or cases with severe pain) is a rare complication of intracranial disease. It is very much less common than amaurosis (from optic neuritis). This fact, whatever its explanation may be, is evidently one of importance. To take a particular illustration: In cases of adventitious products in the cerebral hemisphere we nearly always find blindness,[2] partial or total, from optic neuritis. But in no case have I ever seen deafness the result of adventitious products, nor of any other sort of disease in any part of either cerebral hemisphere. (*I speak only from cases completed by autopsy.*) I have, however, seen only one case recorded (Royal London Ophthalmic Hospital Reports, vol. iv., part iv., p. 420) in which, with tumour of the left cerebral hemisphere, there was complete deafness of both ears. But this case was not exceptional, as there was also a tumour the size of a hazel-nut at the point of junction of the pons and medulla oblongata on the left side. In the Royal London Ophthalmic Hospital Reports, vol. v., part iv., I published a case (there numbered xxi.) of a woman, 18 years of age, who was blind and deaf. She had also a reeling gait. I remarked of her case (p. 281, *op. cit.*)—"I think the disease must be chiefly of the left cerebral hemisphere, and probably of its anterior lobe; but I equally think there must be disease lower down, and away from the cerebral hemisphere, to produce deafness—for, so far as I know, deafness to any considerable extent (I now say to any obvious extent) does not occur from disease of the cerebral hemisphere." This woman died about five years later, under the care of Dr. Claye Shaw, in the Metropolitan Asylum, Leavesden. He was so kind as to show me the tumour. It did not, as I had supposed, actually involve the cerebral hemisphere, but it grew from the floor of the sphenoidal fossa, and thus must have interfered with the hemisphere by pressure at least; moreover, the disease was on the right side. The only reason I had for thinking it to be on the left was that I had been told that the girl had had a *right*-side seizure, doubtfully epileptiform. But the point of importance for my present subject is as to the deafness. There was but one tumour; not two, as I imagined. But *in effect* there were two lesions, as the tumour extended so far back as the seventh pair of nerves. There was affection of the hemisphere (the patient had become insane) by the tumour, and the auditory nerve was *reached by it*. But it must be remarked that Dr. Claye Shaw found no palsy of the parts supplied by the portio dura, which nerve also must have been in the way of pressure.

My impression is that deafness does not result from intracranial tumour (or other

[1] In the "Archives of Ophthalmology and Otology," vol. ii., No. I., appear two papers on affections of the ear, which have as much interest to physicians as to aural surgeons. One is, "A Clinical Analysis of the Inflammatory Affections of the Inner Ear," by H. Knapp; the other is, "On Vertigo occurring in Affections of the Ear," by Gustav Brunner, of Zurich, translated by Emil Gruening, of New York. A perusal of these papers will, I think, convince any one that careful investigations of aural symptoms are of very great value in the elucidation of some obscure nervous affections.

[2] As is well known, there may be optic neuritis without obvious defect of sight, but blindness, partial or total, occurs nearly always before death.

kind of adventitious product) unless the auditory nerve is actually involved or directly pressed on. If so, its significance is altogether different from that of amaurosis from optic neuritis—as in optic neuritis the adventitious product scarcely ever directly involves any part of the optic nervous system. Again, if the fact be as I suppose, deafness is a localizing symptom, whereas, so far as is yet shown, amaurosis from double optic neuritis is of no value whatever in localization. Optic neuritis occurs from tumour in many parts, probably in any part of the encephalon.

In both the above-mentioned cases the tumour could have affected—affected directly, that is—but one of the auditory nerves, and yet the deafness was double. I cannot explain the occurrence of *double* deafness in these cases. Transmitted pressure seems at first glance to offer an explanation, especially as the auditory nerves are soft; but this explanation is not satisfactory. And I have (*Medical Times and Gazette*, June 17, 1865) recorded a case of tumour[1] the size of a walnut, which grew from the front part of the left lobe of the cerebellum, in which case there was deafness of that side only.

To discover how it is that disease of the hemisphere so often causes amaurosis, whilst it never causes deafness, we must consider how the word "cause" is here used. We cannot suppose that whilst the optic nerves have connections with the cerebral hemisphere the auditory have not. Probably the auditory nerves have very indirect connections; but connections of some kind they must have, or we must assume that speaking and singing are not dependent on action of the cerebral hemisphere.

[1] The tumour had flattened the fifth nerve; the portio dura nerve ran into the tumour, or was lost on it. The strange point of the case is that the fifth and portio dura nerves were not paralyzed. My last examination of the case was on December 1, 1864. The patient died February 23, 1865; but Mr. Stephenson, under whose care the patient was, noted no change in the symptoms, except that the patient passed urine and fæces in bed. The deafness was present when (September, 1864) I first saw him. We know that nerves will bear slowly exerted pressure very well, but probably this does not apply to the soft auditory nerves.

The disease of the cerebral hemisphere, so far as it destroys, may cause no obvious symptoms of any kind; but if the destroying agent be tumour or other kind of adventitious product, it leads to secondary changes and optic neuritis in one part[2] of the secondary changes, and fortunately a visible part. How these secondary changes are produced is at present unknown. In the mean time there are several speculations. It would be foreign to my subject to go into these speculations here; I will only mention that I believe the distribution of arteries will be some help to the solution of the difficulty. Whatever the explanation may be, the facts that while blindness often occurs by some process from adventitious products in the cerebral hemisphere, deafness never results from disease of any kind of any part of either hemisphere, are of great importance.

That there may be an auditory neuritis analogous to optic neuritis, it is scarcely worth while in the present state of things either to affirm or to deny. If there is, it may be supposed to depend on disease of the cerebellum. But what we have said of the cerebrum applies to the cerebellum. Vulpian remarks that nothing is rarer than trouble of hearing in alterations of the cerebellum. I have never seen a case of double deafness from tumour of the cerebellum, and yet in nearly every case there is amaurosis (from optic neuritis). In some of these cases, when the tumour is of the middle lobe, there is manifestly increased pressure, not only under the tentorium, but above it; for a tumour here placed will lead to hydrocephalus by interfering with the free return of blood from the lateral ventricles of the cerebral hemispheres. Yet in such cases—I have seen four—there was no deafness.

In cases where there is disease of the tympanum we frequently have nervous symptoms; but these are the result of the ear disease—obviously so in cases of cerebral or cerebellar abscess. I have elsewhere (*British Medical Journal*, June 26,

[2] Other secondary changes are in gray matter of convolutions, on which convulsions are dependent.

1869) remarked on the association of epilepsy or epileptiform seizure with discharge from the ear. It is manifestly difficult to say that there is more than a coincidence. But in diseases so painfully obscure as epilepsy or epileptiform seizure we cannot afford to overlook any realistic condition. We should inquire for earache and discharge from the ear in all cases. At any rate, it is as important to do this as to inquire for worms and other eccentric irritating causes. In all cases of recurring epileptiform seizure we are sure that there is an irritable condition of nerve-tissue somewhere. This is certain, whatever else is doubtful. The great difficulty is to learn by what *pathological* process that irritability results. The irritability may result from different kinds of pathological processes. I imagine that embolism and thrombosis occasionally lead to it, and thus in epilepsies I inquire for heart disease, rheumatism, and scarlet fever; and, since I imagine it may result from *venous* thrombosis, I inquire also for discharge from the ear. Since I have had no post-mortem examinations, I do not pretend to *know* that there is such a relation.[1]

I do not suppose that the ear disease leads to the epileptiform seizure by reflex action, but as seen by the gross process of thrombosis. I mention this expressly, as Knapp (who has only seen extracts from my paper in the *British Medical Journal*) quotes me, along with Köppe and Schwartze, as having published observations "which seem to demonstrate that reflex epilepsy may be occasioned by inflammatory disease of the middle and inner ear." This may be the connection —if connection there really is—betwixt the ear disease and epileptiform seizure; but I do not think it is. However, as I say, I have had no autopsies, and I can therefore only urge that discharge from the ear should be one of the things to be investigated in cases of epilepsy and epileptiform seizure.

It will, however, be of comparatively little value to note the connection unless we note also the *kind of seizure* with which the discharge occurs. By "kind" I mean the region affected; whether, for example, the convulsion is sudden and universal, or begins deliberately in one side of the body —viz., in the face or hand—and may or may not become universal. In many of these cases the convulsion begins suddenly, and we learn from the patient little more than that he has had a severe fit. But in some cases it begins deliberately on one side, and occasionally there is after the seizure weakness of that side. (I have recorded such a case—St. Andrew's Reports, vol. iii., 1870, "Study of Convulsions," Case 6.) An autopsy on such a case would be very important; for it is certain that in such cases there is *local* disease, and indeed, I think, certain that there is disease in the region of the corpus striatum on the side opposite the side of the body in which the fit begins. And of course it is a truism to say that the fit depends on irritability of nerve-tissue. There is irritability of nerve-tissue in the region of the corpus striatum. The missing link is the *pathological process* by which that local irritability results. When we find that the aural discharge is only of the ear on the side opposite the side of the body in which the fit began—that is on the side of the brain—the possibility of the relation need not be lost sight of, with a view to post-mortem verification or disproof.

I have mentioned that occasionally after convulsions beginning unilaterally (hand or face, and probably in foot) there is hemiplegia; that hemiplegia after a convulsive seizure is often slight, and nearly always transitory. In some cases of discharge from the ear—I speak only of children—there is persistent hemiplegia. St. John Roosa has recorded an important case of this kind. I have seen a good many cases, but as I have had no autopsy I will content myself with urging that in all cases of hemiplegia in children the ear should be examined, and with asking that in cases of autopsy on hemiplegic children the possibility of venous thrombosis from ear disease be borne in mind.—*Med. Times and Gaz.*, July 13, 1872.

[1] I have, however, published a case which seems to lend support to that view. There was in that case no discharge from the ear, but the lateral sinus contained purulent matter.

HOSPITAL NOTES AND GLEANINGS.

Notes of a Visit to the Surgical Wards of Dr. Léon Labbé.—In the course of a visit to the wards of Dr. Léon Labbé, at the Hôpital la Pitié, we noticed various interesting cases or surgical facts, of which the following is a brief account:—

Case of Lipoma; an Easy and Practical means of Diagnosing Lipoma.—The case was one of a woman of middle age, on whose left shoulder, superficial to the deltoid, was seated a tumour of about the size of an orange. There was some difference of opinion among the visitors in regard to the nature of the growth, a few thinking it was a cyst, whilst the majority diagnosed a lipoma. Dr. Léon Labbé laid stress on an easy and practical means of making out lipoma. It consists in squeezing and gently raising the skin around the tumour. It follows that the surface, which was before quite smooth and equal, becomes slightly red, whilst the interstices between the lobules of the fatty tumour are marked out by white lines. The appearance thus afforded is quite characteristic of lipoma.

Sub-deltoid Cyst.—Near to the preceding patient was another woman who a few days before had been operated upon for a similar tumour, also situated on the left shoulder. In this case, however, the growth was seated under the deltoid. An exploring puncture had been previously made, and the tumour afterwards removed with the knife. It was a synovial sub-deltoid cyst. The patient was doing well when we saw her.

Amputation of the Thigh; Dressing with Cotton-wool.—This was quite a typical case of dressing with cotton-wool (now extensively employed in the Paris hospitals), and its favorable results. The patient was a girl of about sixteen or seventeen. This was the eighteenth day after the operation. The girl was almost in a dying state when amputation was decided upon. She had a white swelling in the knee, and a large abscess in the periosteum was found loosened and detached up to the middle of the thigh. Hectic fever had already set in, and the girl's strength was fast wasting away. On this, the eighteenth day of the operation, the patient looks quite well and cheerful. She has grown fat, and the cheeks are round and rosy. A large heap of cotton-wool had been applied in successive layers immediately after the operation, and strong compression exerted as usual by means of cotton-bands. The dressing had not been removed since, and will not be removed until about the thirtieth or fortieth day. As there was some slight smell a few days ago, with a little oozing of pus through the dressing, starch with carbolic acid was applied, and there is now no smell perceptible. The cotton dressing looks tight, compact, and clean. The stump may be moved about without the patient experiencing the slightest pain or inconvenience. This kind of dressing should prove useful in ambulance work during war. There has been no traumatic fever. From the day of the operation the patient rapidly recovered her appetite and gained strength.

Dr. Labbé explained a few points connected with the mode of dressing. All the arteries, large and small, must be tied. The wound is simply stuffed with cotton, which during the process of suppuration and healing is gradually and completely pushed out. Circular amputation is more convenient than the flap operation, though flaps are no impediment. The wound need not be washed with carbolic acid or any other disinfecting fluid. Large heaps of cotton-wool must be applied, and strong compression with the cotton bands is necessary.

Dr. Labbé referred to an addition which Dr. Ollier had proposed to apply to this mode of dressing, and which had turned out a complete failure—namely, the use of silicate of potash added to the bands for the purpose of fixing the dressing. The cause of failure is this: It always happens that the cotton-wool swells after twenty-four hours—becomes *tassee*, according to the French expression. The cotton-bands are, therefore, loose, and require to be tightened. This is quite impossible with the silicate of potash.

Sebaceous Cyst of the Head.—In these cases Dr. Labbé uses Vienna caustic, which he applies all over the tumour ex-

cept within two or three millimetres of the base. The tumour dries up after a few days, and then falls, leaving only a white cicatrix. There is no danger of erysipelas.

Stricture and Retention of Urine; Hypogastric Puncture.—This was an illustrative instance of the utility of puncturing the bladder with the aspirating apparatus, in stricture and retention. The day after the puncture had been made and the bladder emptied, a small bougie was introduced and gradual dilatation made, with successful results. No local effects of the puncture are perceptible.

Division of Sciatic Nerve in a Youth by a Bullet.—There exists paralysis of the limb and contraction of the tendo-Achillis.

Enlargement of Great Trochanter for eighteen years; Removed by the Gouge and Hammer.—Guérin's cotton-wool dressing was applied with good results. The operation was performed in the latter end of January. The actual cautery has been since occasionally applied. The patient is doing well, and healing is almost complete.

Atrophy of the Deltoid after contusion of the Muscle.—Electricity has until now been used in vain.

Aspirating Puncture of the Knee in a case of Hydrops Articuli.—The case was caused by a fall on the knee. The patient is a lad of about sixteen. Two punctures with the aspirating needle had already been performed without obtaining any liquid. A third puncture was performed in our presence, when about forty grammes (ten drachms) of blood were withdrawn from the joint. Dr. Labbe said he was glad he had repeated the punctures, as this quantity of blood lying in the joint would, as is always the case, have taken a long time to be absorbed, and also retarded the healing process. Compression had been employed with no effect. He referred to a similar case he had recently treated in private practice in which, after having made a small incision into the surface, he had withdrawn a large number of worm-like pieces of clotted blood. Healing had taken place rapidly.

In order to employ aspirating puncture with good results in cases of effused liquids in the knee, there should be at least two or three ounces of liquid in the joint. Puncture is made without reference to the patella, and where the tumour bulges most.—*Lancet*, Sept. 21, 1872.

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Disease of the Femur; Amputation at the Hip-joint; Recovery.—The following case is of considerable interest, inasmuch as it is one of necrosis of the shaft of a large bone occurring without any suppuration whatever. The history pointed to a malignant affection, but a most careful examination of the bone after removal failed to detect such a condition, and showed without doubt a necrosis. For the notes of the case we are indebted to Mr. Parnell, house-surgeon.

J. B., aged twenty-two, a thin, emaciated young man, was admitted into St. Bartholomew's Hospital, under the care of Mr. Morrant Baker, on August 13, with disease of the left femur. The history is as follows: Ten weeks before admission he went to bed quite well, but on waking in the morning he felt great pain in his left thigh; on the next day he noticed that the thigh was swollen. This went on increasing for six weeks, when, as the patient was walking in his room, the bone broke spontaneously, and he fell down; and since then he has been unable to walk. On admission the left thigh was greatly swollen, the swelling being due to increased thickness of the bone. At about the middle third the bone was angularly curved, the prominence being outwards and forwards; and there was an inch and a half of shortening.

The case being diagnosed as malignant disease, amputation at the hip-joint was performed on August 15. Chloroform being administered, an abdominal tourniquet was applied over the lower part of the aorta. Antero-posterior flaps were then made by transfixion, the posterior flap being several inches longer than the anterior one. The femoral vessels were compressed by an assistant seizing the anterior flap as the knife cut outwards. There was very little blood lost, but many ligatures were necessary to secure the bleeding vessels. The surfaces of the

flaps being washed with a carbolic acid solution, the wound was brought together by wire sutures, the ends of the ligatures hanging out at the extremity of the wound. Lastly, a large pad of lint soaked in carbolized olive oil was placed over the stump, which was then supported by means of a bandage.

On inspection of the removed limb, the muscles surrounding the bone were pale and appeared to be extensively infiltrated; the bone was thickened through the greater part of its extent, but markedly so at and below the seat of fracture, which was at the upper part of the middle third. On longitudinal section of the bone, the well-defined compact portion was seen to be surrounded by a firm casing about a quarter of an inch thick; here and there, however, the continuity of the compact tissue was interrupted. On a more careful examination made subsequently, it was found that the shaft of the bone was necrosed, and not the seat of malignant infiltration, as was at first supposed, and that the casing was made up of lymph thrown out by the periosteum and surrounding soft tissues.

Shortly after the operation, the patient was ordered fifteen drops of tincture of opium, with some brandy. In seven hours the temperature had gone up from 98.4° F. to 100°. On the day of the operation, and for the next two days, the patient was troubled with retching and vomiting.

Aug. 17. The wound was dressed for the first time. Temperature, 101°; pulse, 138.

20th. Wound suppurating freely. Temperature 104.4°; pulse 120.

23d. Fifteen ligatures came away, and on the 24th five more were removed. Temperature 100.2°.

From this date the temperature gradually descended to the normal, the appetite being good throughout.

Sept. 5. The wound is rapidly healing; the last ligature came away to-day.

The local treatment has been throughout the thorough sluicing of the interior of the stump with weak permanganate of potash lotion twice daily, by using a rubber tube, with an elastic catheter to be introduced within the wound attached to one end, as a syphon from a basin containing the lotion.—*Lancet*, Sept. 21, 1872.

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Ligature of the Common Carotid for Hemorrhage consequent on the Removal of a Maxillary Tumour.—H. R., aged 57, gardener, was admitted on May 29, 1872, into St. Thomas's Hospital, under the care of Mr. Le Gros Clark. The most noticeable symptoms in the history of the tumour were rapidity of growth and increase of pain. The pain, which was the first symptom, was not felt until three months before admission, and swelling of the hard palate and upper jaw were noticed a month afterwards. No other member of the family, so far as could be ascertained, had suffered from cancer.

On admission, the patient had a considerable tumour of the upper jaw, distorting the face and forcing its way into the mouth. The eye was partially closed, and there was a discharge from the left nostril, where a polypus was visible. The teeth had disappeared from the left superior maxilla, with the exception of the two incisors. No glandular enlargement of the neck was detected.

On introducing the finger into the mouth, the tumour was felt as a firm elastic mass, and scattered about it were some openings like pinholes. The patient's symptoms were such as might be expected from the character and position of the growth; severe shooting pain in the left side of the head, difficulty of swallowing, much thickening of the voice, and impairment of vision from the upward pressure of the floor of the orbit, so that objects above a certain elevation appeared double. A small portion of the interior of the growth was obtained by harpooning from one of the openings before referred to in the hard palate, and was found to consist of a fibrous nucleated stroma with cells, chiefly of an epithelial character; there were occasional myeloid forms, but a large proportion were very erratic.

On June 12, Mr. Le Gros Clark removed the left superior maxilla. The line of incision passed downward from the inner angle of the orbit by the side of the nose round the left ala nasi to the middle of the lip, and outward along the lower margin

of the orbit to the middle of the zygoma. The soft growth which was found filling the bone extended so far back that it was impracticable entirely to remove it. Vessels in the tumour under the masseter bled freely, and were twisted. The actual cautery was applied to the exposed surface, and the superior maxillary nerve cut short. A sponge, covered with gutta-percha tissue, was introduced to fill out the cheek, and the edges of the wound were accurately adapted with wire sutures.

June 14th.—The sponge was easily removed. The wound was cleaned with Condy's fluid and replugged with oiled lint.

June 17th.—The wound was syringed with Condy's fluid. The incision had healed throughout almost the entire length. All sutures were removed. 7 P.M.—There was copious hemorrhage—about twenty ounces. The bleeding was temporarily arrested by the application of ice and repeated pluggings of lint dipped in perchloride of iron. The condition of the patient, however, rendered it necessary that there should be some better security against hemorrhage, and accordingly, at about half-past ten o'clock, Mr. Wagstaffe tied the common carotid artery. An incision, between two and three inches in length, was made over the edge of the sterno-mastoid muscle, the skin and fascia were divided, and the superficial veins twisted. The artery, which was large, emerged from under the sterno-mastoid at about a level with the upper border of the thyroid. A double catgut ligature was used and cut short. The wound was brought together with strips of plaster. The plugs were then removed from the mouth.

June 18th, 6 P.M.—The pulse was small, and the face much blanched. The patient's general condition was somewhat better than was expected. Since the operation the patient had slept a little, and had taken custard milk and iced brandy and water with some relish.

June 20th, 6 P.M.—He had been very restless, and had taken but little nourishment.

June 21st, 6 Evening.—The patient remained in the same state until noon to-day, after which he sank rather rapidly and died at about half-past five o'clock. There was no noticeable return of pulsation in the temporal artery. A *post-mortem* examination was made by Dr. Payne about twenty-one hours after death. A mass of new growth or inflammatory material remained attached to the under surface of the floor of the orbit, and a small abscess was found under the zygomatic process. Besides this, there was no pus. The left side of the neck was also examined, and the vein and nerves (pneumogastric and descendens noni) were found uninjured. There was very little pus also in this wound. The upper lobes of both lungs were found studded with grouped patches of gray tubercle, and some masses of fibroid tissue, but no caseous matter. The lower lobes contained also scattered gray tubercle. The bronchi were inflamed, and the bronchial glands were large, hyperæmic, and succulent, but not caseous. The liver, spleen, and kidneys were healthy. The brain also was healthy. The arteries of the circle of Willis contained the ordinary *post-mortem* clots, and a similar clot was found in the upper part of the internal carotid.—*Brit. Med. Journ.*, Sept. 21, 1872.

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Eight Fistulæ in Ano, with Stricture four inches up Rectum.—A patient in King's College Hospital under the care of Mr. HENRY SMITH exhibited the most deplorable condition of the rectum, the buttocks being riddled with fistulæ, open and healed up. Five distinct fistulæ opened on the left buttock and three on the right, and a number had spontaneously healed up. They all opened into, or nearly into, the rectum at and above the stricture. The patient was a soldier, in excellent health otherwise, strong and robust, and he had been twice operated upon by qualified surgeons; but they and the physicians who had seen him had failed to detect the stricture. It was just beyond the reach of the finger, and was therefore overlooked. Mr. Smith demonstrated the stricture by introducing a No. 10 catheter, which could only pass up with difficulty; under chloroform it passed

easily, but no more. When the stricture was freely divided, a No. 1 rectal bougie passed up readily six inches. Mr. Smith then freely divided the fistulæ also, although some of them opened fully two inches from the anus, making long cuts into the bowel and laying the anus quite open. The remains of former operations, in the shape of thickened skin about the anus, he then removed with scissors; and, after stuffing with sponges and padding, the man was removed. The operator remarked, that, when stricture exists with fistulæ, it is quite impossible to cure the latter without dividing the former. So long as the stricture exists, so long will the fistulæ open on the buttock; and the stricture should in every case be looked upon as the primary disease. In some few cases a necrosed coccyx or sacrum is the cause of the fistulæ, and requires primary attention; but generally it is stricture. Mr. Smith also noticed the precise parallel between fistulous openings in the perineum and stricture of the urethra, and such cases as he had just operated on.—*Ibid.*

MEDICAL NEWS.

DOMESTIC INTELLIGENCE.

On Chloral in Pertussis, and a Poultice of Digitalis in Suppression of Urine and in Puerperal Convulsions. By G. R. Henry, M.D., of Burlington, Iowa.

I have used the hydrate of chloral now for two years, and have not met or heard of a case of whooping-cough that was not promptly *cured*. I have suggested its use to a number of practitioners, who all report a perfect success. It will control the spasmodic cough, if given in the latter stages; and, if given early, it will prevent the whoop from appearing. I use it dissolved in syrup of Tolu, in doses of two to ten grains, according to age of child, and repeated as often as the cough occurs; and I have yet to see a case that required more than ten days' treatment. Contrast this with the weeks and months of suffering and distress which we have seen wear out our little patients.

Another remedy, which has not the position given to it to which it is entitled, is a digitalis poultice, applied to the abdomen in cases of *urinal suppressio*.

I have used it with marked success in cases of puerperal convulsions, and in other cases where the stomach would not tolerate remedies by the mouth. I have seen it fail, in common with all other remedies, in some cases of fever, where the suppression was due to a loss of vital action in all the organs; but I have also had such decided and marked good results from its use, that I think it worthy of more notice than it receives from the profession.

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Case of Abscess of the Cervix Uteri.—By W. Scott Hill, M.D., of Augusta, Maine. In November, 1868, Mrs. A. G., age 48, mother of seven children, consulted me for menorrhagia of sixteen months' standing. The patient was rather above the ordinary size and very anæmic. The last confinement was some three years previous to the above date. She had been prescribed for by a physician, but no examination made. Complains of some pain in the pelvic region, but not enough to prevent her from doing her ordinary work or from walking or riding. Has some leucorrhœa. Examination with speculum showed a large cavity on the right lateral aspect of the cervix uteri, about six lines in diameter at its outer surface, and apparently about three at its entrance into the cervical canal. The cervix was considerably enlarged, about one and three-quarter inches in length, by one and one-half in diameter. The anterior and posterior lips were soft and patulous, having much the appearance on the surface of a ripe strawberry. The treatment was principally by local applications of tr. iodine, with injections of chlorate of potash. For the menorrhagia, some of the preparations of opium, with gallic acid in ten grain doses, and occasionally acetate of lead, afterwards ferruginous tonics. The cavity gradually filled with healthy tissue. The cervix resumed its normal size in the course of a year. She is now in her usual good health, and menstruates regularly though past 46 years of age. Nothing could be learned from her history of the

case to show how long the above condition had existed when first seen by me.

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Remarkable Inaction of Strychnia administered Hypodermically.—Dr. Thomas Kennard states (*Medical Archives*, June, 1872) that on the 5th February he commenced the hypodermic injection of strychnia with a patient "whom I believed was suffering from white atrophy of the optic nerve, and who had no vision from one eye, and very imperfect from the other for several years, and for which trouble every means which promised good had been tried in vain. I was naturally timid in my first experiments with so powerful a remedy, and began with the $\frac{1}{60}$th of a grain, which, having no perceptible effect, I then increased day by day, to the $\frac{1}{40}$th, $\frac{1}{30}$th, $\frac{1}{24}$th, $\frac{1}{15}$th, $\frac{1}{12}$th, without perceiving any benefit or effect whatever. I then, on the 7th day of treatment, used the $\frac{1}{12}$th, morning and evening, for some five days, when I combined with it the elixir quiniæ et strychniæ ferrat ℥ij, or the $\frac{1}{30}$th of a grain of strychnia three times a day, and still perceiving no effect from this heroic treatment, except slight twitching on one occasion, I began to consider my patient strychnia proof, and ventured to increase the hypodermic dose, on the 14th day, to the $\frac{1}{8}$th, then to the $\frac{1}{6}$th, $\frac{1}{5}$th, and even the $\frac{1}{4}$th, without any perceptible effect, more than I expected from the tonic influence of the elixir taken internally. This patient was a delicate and infirm man, about fifty years of age. Whilst he was under treatment, I used hypodermically the same remedy—only increasing the amount injected more rapidly—with a young woman who, within a short space of time, had lost completely the senses of smell, taste, and vision; but was apparently otherwise in the enjoyment of perfect health. I commenced with her on the 13th of February with the $\frac{1}{24}$th gr., then day by day I increased to the $\frac{1}{15}$th, $\frac{1}{10}$th, $\frac{1}{8}$th, until the sixth day, I injected the $\frac{1}{8}$th, and repeated that dose five days without any perceptible effect whatever, except upon the third or fourth day, when she had some twitching, and her vision was improved slightly, or rather she thought that she could distinguish light from darkness, and perceive large bodies passing her, which she could not do before. She was also taking the elixir internally, $\frac{1}{30}$th of a grain of strychniæ three times a day. This improvement was only transient, however.

"On the 17th of March I was called to see an Irish woman, who for seven or eight months had been suffering with partial paralysis of the arm and leg of the right side, accompanied by a most intolerable feeling of coldness, as if ice was packed on that side. I commenced with the $\frac{1}{24}$th of a grain of strychnia hypodermically, and the elixir of quinia, iron, and strychnia ℥ij internally three times a day, and gradually increased it to the $\frac{1}{12}$th, $\frac{1}{8}$th, and the $\frac{1}{6}$th, which dose I continued until the 27th without any toxical effect whatever. Her limb soon got naturally warm, but most likely from the effects of the strong veratria ointment which I rubbed it with; though, perhaps, the strychnia produced it, as Echeverria recommends it very highly in such cases, and reports several cases thus treated satisfactorily.

On the 1st, 2d, 4th, and 5th of April I injected the $\frac{1}{12}$th, $\frac{1}{8}$th, $\frac{1}{6}$th, and $\frac{1}{4}$th of a grain of strychnia into the arm of an old lady seventy-two years of age, for partial paralysis, with some benefit, but no poisonous effects whatever; there was not the slightest twitching produced in her at any time, and I had employed it with her on one former occasion with the same result.

Such has been my short experience with the hypodermic injection of this powerful remedy, and it differed so materially from the published reports of others, that I thought it worth while to make a note of it; for, although authorities have varied in regard to the dose of strychnia to be administered hypodermically, and Courty and Eulenberg have injected as much as the $\frac{1}{4}$th of a grain, the majority have recommended from $\frac{1}{60}$th to the $\frac{1}{24}$th of a grain, and cautioned us against the dangers of even the latter amount; and, so far as I know, none before me have doubted that it would produce its usual physiological and toxic effects when injected beneath the skin.

Death from Ether.—Dr. W. B. Dunning, Acting House Surgeon at the Bellevue Hospital, New York, reports (*Medical Record*, Oct. 1, 1872) the case of J. S., a saddler, aged 68, who was admitted into the Hospital on August 2, 1872, suffering from a fracture of the left femur, just below the trochanter. The patient was treated by a "Buck's extension" until Aug. 20, when it was decided to apply a plaster of Paris splint. In order to make sufficient extension, and at the same time prevent the pain of the operation, ether was ordered to be administered. The administration of the anæsthetic was slowly and carefully made, and after perhaps ten minutes the patient was fully under its influence and the operation begun. A few turns of the plaster had been made, when the patient's breathing was observed to be rather frequent and gasping. The pulse was, however, full and regular. The thorax was compressed two or three times, and the patient's breathing again became normal. As these symptoms not rarely occur during etherization, they excited no special alarm. The ether was, however, withheld from the patient four or five minutes, his repiration and pulse being normal. As he then began, however, to move about and his muscles were becoming rigid, the ether cone was again applied. In a minute or two, the assistant, who was giving the ether, observed the pupils to be dilating rapidly and the breathing to cease. His heart was still beating, however. The ether cone was of course immediately removed and artificial respiration was again used, and all the batteries obtainable in the hospital were put in operation in an effort to resuscitate the patient. His muscles occasionally responded by a spasmodic movement, but no breathing again occurred. The efforts at resuscitation were continued about forty minutes, until all response to the action of the battery had ceased.

Autopsy was made three hours after death. Rigor mortis was marked. Blood was fluid. Heart contained a little fluid blood with a little atheroma at base of aortic valves. The lower lobe of right lung is œdematous, and its lower portion in a state of red hepatization.

Ether was pure, and about ℥vi was used.

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Naval Medical Board.—A Board consisting of Medical Director Charles D. Maxwell, President, Medical Director William Greer, Medical Inspector Thos. J. Turner, Surgeon Albert L. Gihon and R. C. Dean members, and Surgeon Joseph Hugg, Recorder, has been convened at Washington, D. C., for the examination of candidates for promotion and for admission in the medical corps of the navy.

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The University Hospital, Philadelphia.—Ground was broken on the 12th of October, for the erection of this Hospital on the lot bounded by Spruce and Pine Streets, and by 34th and 36th Streets, containing about eight acres. This lot was granted by the City of Philadelphia to the Trustees of the University of Pennsylvania for the erection thereon of the University Hospital. T. W. Richards, Esq., the University architect, has been entrusted with the drawing up of the plans for the building.

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The German Hospital.—The new building of the German Hospital Association, at Corinthian and Girard Avenues, Philadelphia, has been put in complete order, and is now open for the reception of patients. It has at present room for seventy beds and its capacity is to be increased soon. All the patients from the old building have been transferred to the new one.

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Vital Statistics of the United States.—Dr. J. M. Toner, of Washington, from an examination of the census returns, asserts that the American people are showing unmistakable signs of physical degeneracy.

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Dr. Brown-Sequard has resigned the chair of Comparative and Experimental Pathology in the Faculty of Medicine in Paris, which he has occupied for several years. Dr. Brown-Séquard will hereafter reside in the city of New York.

FOREIGN INTELLIGENCE.

Brasdor's Operation in Innominate Aneurism.—Mr. Timothy Holmes, Surgeon to St. George's Hospital, in one of his "Lec-

tures on the Surgical Treatment of Aneurism in its Various Forms," gives (*Lancet*, Aug. 31, 1872) the following conclusions on the subject of Brasdor's operation in innominate aneurism, which appear to him to be justified by present experience.

1. That the distal ligature of the carotid alone, or in conjunction with that of the third part of the subclavian, cannot be trusted to produce the complete consolidation of the tumour.

2. That, however, the natural effect of the ligature of the carotid artery is to produce coagulation in the part of the sac directly connected with the mouth of that artery.

3. That this may suffice practically for the cure of the aneurism, when the subclavian portion of the sac is small and shows no disposition to grow.

4. That in other cases, where the mouth of the subclavian artery is previously obliterated by impacted clot, the ligature of the carotid only may effect a radical cure.

5. That for these reasons it is better, in any case which appears to require distal ligature, to commence with the operation on the carotid alone, and afterwards to consider the propriety of securing the subclavian either in its first or third part.

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Quadruple Amputation.—In the autumn of 1869, Dr. Begg, of Dundee, amputated the whole of the extremities in the case of a young woman named Robertson, whose hands and feet had assumed a gangrenous condition, the proximate cause of which was attributed to embolism. After the operation a subscription was raised, and the poor woman sent to London, where, at the request of some influential friends of hers, Mr. Heather Bigg had constructed for her some especially devised prothetic appliances, in which the distinguishing features were, that the artificial hands were automatic in action, opening and shutting their fingers at the will of the patient. This peculiar prehensility gave her the power of grasping even so small a substance as a crochet-needle, and enabled her to gain a comparatively lucrative livelihood by making shawls, etc. So admirably did she do this, that one was sent by her to the Queen, who, struck by the excellence of the workmanship and the remarkable means by which it was accomplished, generously gave the poor woman £5. The artificial legs were also so arranged as to enable her to stand and walk with the aid of crutches. Three years have passed since she first began the use of extraneous appliances, and she now writes an admirable hand, besides knitting, feeding, and dressing herself, etc. In a communication made by her a few days since, which is now before us, she writes that she can walk alone quite easily with the aid of crutches, and that no one could observe the cause of her lameness. The case is one of no common interest, owing to its being the only one on record in which the whole of the four extremities have been removed. Apart from its pathological value, as indicating how life may be saved by judicious interference in cases of embolic gangrene, there remains the gratifying result that, by the use of ingenious mechanism, the patient is enabled to gain her living, whilst presenting nearly the same external appearance as if she still retained possession of her natural limbs. It is an unique case, and a triumphant instance of mechanical ingenuity.—*Brit. Med. Journ.*, Oct. 5, 1872.

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Treatment of Fracture of the Leg with Lateral Distortion.—Mr. Henry Taylor describes the following mode of treatment for this accident, which he observed practised in the Copenhagen Hospital. "Some cases," he states, "of fracture of the leg were put up in a splint of peculiar construction, devised by Professor Stein of this city, which appeared to act efficiently in cases attended with lateral distortion, as in Pott's fracture. The apparatus consists of a wooden fracture-box, of greater width than the leg, having a sliding foot-board and three binding screws in each side-piece, which can be made to press against the sides of the limb at its centre and both extremities. Small hollow side-splints are first applied to the leg, and receive the pressure from the screws, which are tightened at the points most requiring it. This application of

pressure, acting from points unconnected with the limb, nearly resembles the action of the surgeon's hands in rectifying displacements, and is not effected by any other splint with which I am acquainted." —*Brit. Med. Journ.*, Sept. 28, 1872.

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Sciatic Hernia.—Dr. Marzolo, of Padua, has related the case of a woman who first came under notice in 1847, at the age of 30. Ten years previously she had observed a small swelling in the left buttock; it disappeared when she lay down, but reappeared in the erect position and gradually increased. She had four abortions, and bore one healthy child. When seen, the hernia extended over part of the buttock, as far as the trochanter, and forward to the groin. The abdominal wall was retracted. On lying down or sitting, the greater part of the contents of the swelling could be returned into the abdomen; defecation and coition were difficult. Last year the patient again came under observation. Her condition had changed but little; but the hernia was now irreducible, and at the lower part there were dulness on percussion and fluctuation. A puncture was made, and nine litres of fluid removed. Diarrhœa set in and the patient soon died. No post-mortem examination could be obtained. —*Brit. Med. Journ.*, Oct. 5, 1872.

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Spina-Bifida cured by repeated Punctures and Compression.—Dr. Camara Cabral exhibited to the Lisbon Academy of Medical Sciences (Feb. 17th) an infant of four months of age, whom he had cured of congenital spina-bifida by the above treatment. The punctures were made with the "aspirateur" of Dieulefoy, and 305 grammes of albuminous fluid withdrawn by six operations performed at intervals. Compression was made by adhesive bandages.—*O Correio Medico de Lisboa.*

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Skin-grafting.—M. Marduel has given in the *Lyon Médical* (for September 15 and preceding numbers) an elaborate analysis of all the hitherto published facts connected with this subject, which will prove of great use to all those investigating it. In regard to the "clinical results" which may be fairly deducible from the trials of the practice, he speaks much less sanguinely than many of those who have adopted it. It is true that the graftings seem often to have increased the rapidity with which cicatrization takes place; but then this is especially observed in those wounds which have a red, healthy appearance, and seem (as Reverdin says) as if about to cicatrize; but when we have to do with atonic, fungous, and soft granulations, the means fail, as they do in scrofulous wounds and all others that have no tendency to cicatrize. Some surgeons, indeed, ask whether the true cause of the more rapid cicatrization when it does take place is not rather the minute care which is taken in dressing the wound. Then, again, the solidity of the cicatrix has not always proved considerable, ulceration in it readily occurring. In fact, the success of skin-grafting, amidst so much contradictory evidence, cannot yet be considered as established, and further investigation into all the circumstances attending the practice is called for.—*Med. Times and Gaz.*, Sept. 28, 1872.

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Rupture of the Uterus and Successful Gastrotomy.—Dr. Fourrier, of Compiégne, relates in the *Bull. de Thèrapeutique* for August 15, in great detail, one of the most remarkable cases on record. We have only space to note the chief points. He was called on December 18, 1871, to a woman, 29 years of age, in whom on the 14th rupture of the uterus had taken place, with discharge of the child (between seven and eight months) into the cavity of the abdomen. The woman was apparently sinking from exhaustion, and after putting her under chloroform gastrotomy was performed. The child, together with the placenta and membranes, having been removed, the left iliac fossa was found to be lined with a blackish membrane in shreds, which was afterwards determined to be the peritoneum in a state of gangrene. Coagula concealed the aperture in the uterus, but neither after the accident nor during the operation had there been hemorrhage of any importance. The case went on well,

with some fluctuations, until January 14, when enteritis and what was at first feared to be purulent infection set in. Quinia was given in large doses with good effect, and the patient eventually did well. By February 19 she was considered quite well, and in May menstruation reappeared. She has been seen several times since, and continues quite well.—*Med. Times and Gaz.*, Sept. 21, 1872.

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Treatment of Poisoning with Atropia by Morphia.—M. ABEILLE communicated a case to the Academy of Medicine (*Bullet. de l'Acad.*, Aug. 27) in which symptoms of poisoning induced by the hypodermic injection of nine milligrammes of atropia were treated and cured by the injection of thirty-seven milligrammes of the hydrochlorate of morphia, without any other means (not even sinapisms) being had recourse to. It was a case of sciatica, which during four months had resisted all means of treatment, including morphia injections. Having in similar cases obtained successful results from atropia, M. Abeille resolved on its use, notwithstanding its well-known danger, being satisfied that he could meet this by means of morphia. This conviction was the result of its use in a case of very dangerous poisoning related to the Academy in 1868. In the present case the cure was complete, for it has continued during two years, and the symptoms of poisoning were dissipated within three-quarters of an hour by one injection of morphia.—*Med. Times and Gaz.*, Sept. 21, 1872.

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Use of Milk in Cancer of Stomach.—The invaluable benefit of milk diet in cases of cancer of the stomach has been forcibly brought out in an instance recorded by the *France Médicale* for August 24. The patient, under the care of Dr. Siredey, at the Hôpital la Riboisiére, had not been able for two months to take any kind of food without immediately throwing it up. Milk, in small quantities at first, was then ordered as diet. It was not brought up, and consequently during thirty-six days it was used in any quantities, and without inducing sickness. At the end of this time other sorts of food were given, and properly retained.—*Lancet*, August 31, 1872.

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Linimentum Calcis in the Treatment of Surgical Cases.—Mr. R. T. MANSON states (*Brit. Med. Jour.*, Oct. 5), that he has tried the linimentum calcis in a great variety of surgical cases, from bruised fingers to amputations, and with uniform success. The advantages of its use are: lessening the secretion of pus from a wound; easiness of application; extreme adaptability to irregular surfaces; prevention of the access of atmospheric air to the wound; promotion of healing by first intention, or, when that does not occur, promotion of healthy granulation; doing away with the use of nitrate of silver or sulphate of copper; ease to the patient; and saving of time to the surgeon. Used on lint, the linimentum calcis is not nearly so valuable as when used on fine cotton-wool. Lint does not get into the holes and corners of an irregular wound as cotton-wool does; it is not removed so easily; it becomes more easily dried and hardened, and possesses less of the nature of an artificial skin than cotton-wool. Linimentum calcis has long been used for burns and scalds. Some surgeons think it a nasty application; but, when made with olive-oil instead of linseed-oil, as was formerly the case, the nastiness is abolished. The *modus applicandi* is as follows: On a piece of fine cotton-wool, rather larger than the surface of the wound to which it is to be applied, the linimentum calcis is poured and spread over the wool, which is then placed over the wound and covered with common wadding. Either bandages or strips of plaster may be used to keep the lint in position.

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Mercury in Syphilis.—The employment of mercury in syphilis has been again lately much discussed. We (*Gazette des Hôpitaux*) have witnessed the practice of both the supporters and its denouncers. To us, it is beyond doubt that mercurial preparations, properly administered, shorten the duration not only of the secondary accidents, but even of the tertia-

ry, which have resisted iodide of potassium administered alone. As to the choice of the mode of application, Sédillot's pills have appeared to us as efficacious and more agreeable to take than bichloride or the hydrargyric iodides. We know that each of these pills contains double mercurial ointment, 10 *centigrammes;* medicinal soap, 10 *centigrammes;* marshmallow powder, 10 *centigrammes.* They are daily prescribed by M. Richet, M. Hardy, and others. By giving these concurrently with iodide of potassium, and disusing them from time to time, so that they can be alternated with a draught containing chlorate and nitrate of potash, they can be continued for months without producing either salivation or fatigue of the digestive canals. This is an excellent plan of treatment when one is anxious that certain accidents menacing existence, such as intracranial tumour, should rapidly disappear; but it must not be forgotten that, if these tumours manifest themselves by epileptiform attacks alternating with coma, returning at very short intervals, this specific treatment must not then be commenced. These symptoms must first be subdued by acting on the excitability of the brain. Tincture of amber in large doses, and bromide of potassium, of which the action is slower and more lasting, conduce to this result. Thus the system can for the time be reduced to calmness, although the tumour still exists. Things go on the same as before the first epileptiform attack. The morbid growth is still there; its pressure is always the same; but the brain is quiet. This truce must be taken advantage of, to at once administer the mercury and iodide. Expective treatment is not admissible in such a case.—*Ibid.*

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Syphilization.—Mr. Henry Taylor, in his notes of observations made in the hospitals of Christiania and Copenhagen (*Brit. Med. Journal*, Sept. 28, 1872), states that, "In the Royal Hospital at Christiania, I had the good fortune to find Dr. W. Boeck going round, who took the trouble to explain to me, in my own language, the nature of the more important cases under his care. The practice of syphilization, which has had so zealous an advocate in that distinguished physician, is still pursued by him exclusively in all forms of constitutional syphilis, and was being carried out in a great number of the cases before me; and, as I was told, with unvarying success. His plan is to inoculate the patient in the first instance with virus from a fresh sore, and then to continue the inoculation every third day with discharge from the sores thus artificially produced, until it ceases to have any effect, when the cure is considered complete, the constitutional symptoms having disappeared *pari passu.* The parts selected for inoculation are the chest and abdomen, and the operation is performed with a large lancet, which, after being charged with his virus, is placed vertically with its point on the skin, and twirled round so as just to penetrate the cuticle; the point is then wiped on the puncture. As two or three punctures are made every time, and as the treatment may extend over a period of several months, it follows that the patient's trunk is sometimes diapered all over with cicatrices, as happened in more than one instance among those in the hospital. In one man the resulting sores had an ugly aspect from phagedænic ulceration, but in the great majority no undue action had followed, and the constitutional symptoms had certainly declined or disappeared altogether, whether from the influence of syphilization, or from the natural cure effected by time, it would be hard to decide. As no other treatment, local or general, is allowed, except the light application of nitrate of silver to ulcers, the inoculation plan is credited with the cures. Notwithstanding this apparent success of syphilization in Dr. Boeck's hands, it is not practised by any of his colleagues in the hospital, nor by the profession in general. The objection I heard made to it was that it was 'too cruel.'"

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On the Combination of Chloroform and Morphia.—At a recent meeting of the Académie des Sciences, M. Demarquay read a paper on the practice of combining the subcutaneous injection of morphia with the administration of chloroform,

which has on several occasions been put into force in consequence of M. Claude Bernard's experiments having shown that in this way the anæsthetic condition can be kept up by the employment of a much less quantity of chloroform. According to M. Demarquay's own clinical observation, as well as the results of his experiments on animals, this practice, so far from diminishing, may add to the dangers of chloroform, especially when the patient is already in a depressed condition from hemorrhage, shock, etc. He observes that either of these agents administered separately produces a depression of temperature; and by using the two together he has lowered this by 2½° C. He is of opinion that the combination should be entirely renounced, and that all our efforts should be directed towards perfecting the administration of chloroform. He thinks that flannel is the best material through which it can be given, and has devised a mask made of it upon which the chloroform is allowed to flow from a bottle drop by drop. The evaporation is continuous, and the patient breathes without any effort, frequently falling quietly asleep without prior agitation. This apparatus, he says, has been employed by a great number of practitioners with excellent effect. He has stated his views upon the subject at length in the *Gazette des Hôpitaux* for August and September.—*Med. Times and Gaz.*, Sept. 21, 1872.

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Internal Use of Carbolic Acid.—Now that this acid is being tried internally, we should ascertain in what doses it may be poisonous. MM. Paul Bert and Jolyet, of Paris, have undertaken experiments to make out this point. Between forty-five and sixty grains will kill a dog of large size; nor should it be concluded that man could bear a dose in proportion to his weight compared to that of the dog, as thirty grains of hydrochlorate of mophia have been injected into the jugular vein of a dog without killing him. Of course one-fourth of this dose would kill a man. The above-mentioned authors state that carbolic acid is a powerful poison, which, very imprudently, is left in the hands of any body, either in solution or in the solid state. The former is the most dangerous, as some weak solutions for internal use are sold, as well as very strong ones intended for external use. Thus mistakes may easily occur. MM. Bert and Jolyet find that carbolic acid acts like strychnia on the excitability of the spinal marrow. It increases its sensibility, like strychnia, at first; but it diminishes that sensibility, or completely abolishes it, when the convulsive stage has exhausted the medulla. The phenomena resulting from carbolic acid are said by our authors to be quite similar to those produced by chloroform, chloral, ether, woorara, and the section of a motor nerve.—*Lancet*, July 13, 1872.

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Antidote to Carbolic Acid. — Various oily substances have been recommended as antidotes to carbolic acid poisoning. Dr. Husseman (*Pharmaceutische Zeitschrift für Russlande*) finds saccharate of lime the most effectual.—*Brit. Med. Journ.*, Oct. 5, 1872.

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Deaths from Chloroform.—In the *Brit. Med. Journ.* for Sept. 28, 1872, it is stated that a girl, æt. 16, expired at the South London Ophthalmic Hospital, while under the influence of chloroform administered preparatory to an operation on the eye.

In the No. for Oct. 5, of the same journal, there are reported two more cases of death from chloroform. One occurred in a lady aged over 70, who fell down stairs and fractured her leg into the knee-joint. Chloroform was employed to aid in the reduction. "The patient quickly succumbed to its influence, death ensuing, when very little chloroform had been used. We are not aware that any autopsy was made."

The second case occurred in the London Hospital. A publican, aged 34, had suffered for some time from inflammation of the foot and leg, probably connected with disease of bone. A sinus passed from the outer side of the foot, near the malleolus, under the sole of the foot; but, having no dependent opening, pus was collecting in it continually. It was proposed to examine further into the condition of the parts, and make a free escape for the pus. The patient begged that

chloroform might be given him: this was accordingly done by the house-surgeon, another gentleman taking charge of the pulse, and the surgeon proceeding with the examination. The man exhibited no peculiar symptoms at all at first. He passed through a very feeble "excitement stage," and he was never fully under the influence of the anæsthetic, for, on touching the ocular conjunctivæ, he always displayed the usual reflex contractions of the eyelids. About three drachms of chloroform having been administered, the patient was considered sufficiently, though not entirely, under its influence to commence the examination, and no more of the anæsthetic was given, as the patient exhibited no signs of pain. No severe hemorrhage occurred, but the granulating wounds bled freely when enlarged. The administration had been discontinued for a minute or two longer, when the patient seemed to flinch; at the same moment the gentleman who had charge of the pulse said, "He has lost his pulse." No pallor of the lips nor peculiarity of respiration were at this moment at all visible: the chloroformist could hardly believe such was the case; but in a few seconds the patient began to sigh, and pallor, yet with some lividity, was observed. Artificial respiration (Silvester's method), galvanism to the heart, frictions, and brandy enemata, were in immediate use; but, after about three-quarters of an hour, the air entering the chest became practically nothing, and all hopes were abandoned. It should be mentioned that the viscera of the chest had been previously examined, but there were no physical signs to enable one to discover any disease whatever in the heart or lungs.

A post-mortem revealed that the heart weighed 11¾ ounces; the cavities were natural. The muscle of the left ventricle was somewhat paler and softer than natural; but this change was no more than what is commonly seen after death from many causes: it was of natural thickness; there were no transverse yellow markings to indicate fatty degeneration. Under the microscope, the muscular fibres were seen to be somewhat degenerated; they were granular, and the transverse striæ were more feebly marked than in healthy muscle of the heart. The valves and orifices were healthy. The left ventricle was not firmly contracted, though slightly so, and it contained some fluid blood.

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The Fate of the Leporides.—Most biologists, and especially the readers of Darwin, will remember that, in 1868, M. Eugene Gayot, of Bretigny-sur-Orge, obtained, by crossing a hare with a rabbit, a mongrel, to which he gave the name of *leporide*. This animal became fertile, and the hope was entertained that a new species of animal would arise for domestic use; but this hope was deceived, and quite recently M. A. Sanson has made an interesting communication to the Academy of Sciences on the subject. Mated together, these hybrids of M. Gayot became fertile, and their fertility did not seem to be weakened; but they were simply hybrids, which, as others have done, oscillated for a time between the two types from which they descended, before returning definitely to one or other of these types. From the experiments of M. Gayot, he found that the greater number of his leporides returned decidedly and rapidly to the rabbit type, whilst only a few, and, with difficulty, tended towards the hare type. As to the fertility of these hybrids, it explains itself, according to M. Sanson, by the vicinity of the two species in the common race. The species are disposed in regular series. Those which are vicine in their series produce, by interbreeding, offspring which are fertile. It is still the same when they are not too far removed. If there be between them more than a certain number of series, the offspring of their breeding is sterile.—*Brit. Med. Journ.*, Oct. 5, 1872.

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Smallpox in the German Army.—The total number of deaths from smallpox in the German army, during the recent war, was only 203. This small mortality is attributed to the system of compulsory vaccination which every man who enters the army must undergo.—*Med. T. and Gaz.*, Oct. 5, 1872.

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